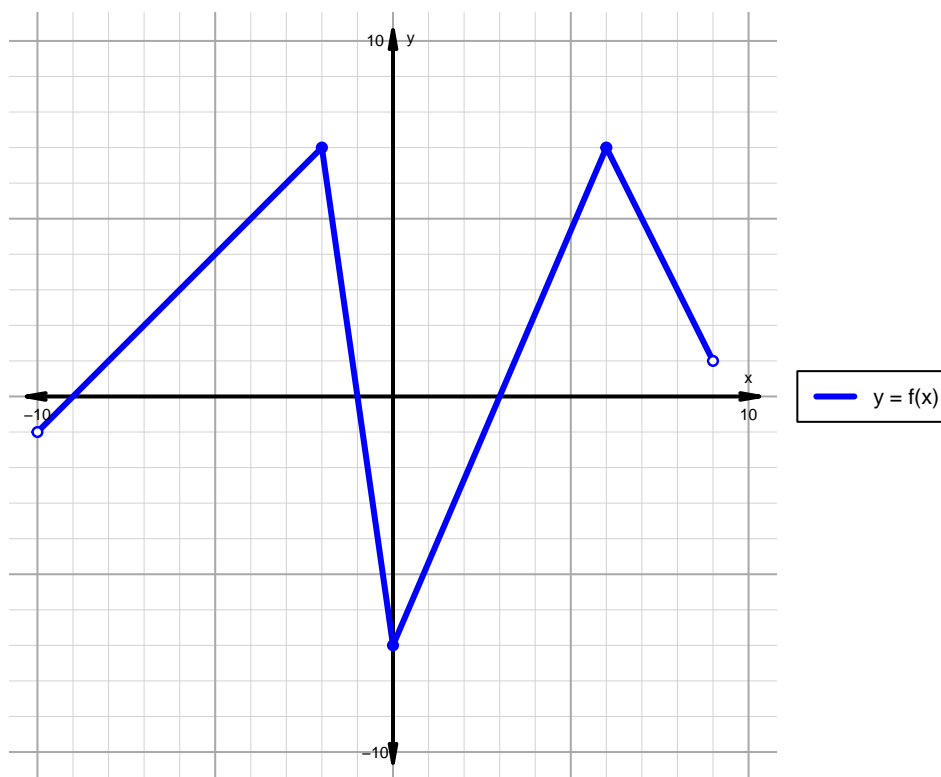Name: _____   Date: _____

Intervals, Transformations, and Slope Solution (version 49)

1. The function f is graphed below.

Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-9, -1) \cup (3, 9)$
Negative	$(-10, -9) \cup (-1, 3)$
Increasing	$(-10, -2) \cup (0, 6)$
Decreasing	$(-2, 0) \cup (6, 9)$
Domain	$(-10, 9)$
Range	$(-7, 7)$

Intervals, Transformations, and Slope Solution (version 49)

2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = f(x - 2)$

$y = 2 \cdot f(x)$

$y = f(x) + 2$

$y = f(-2 \cdot x)$
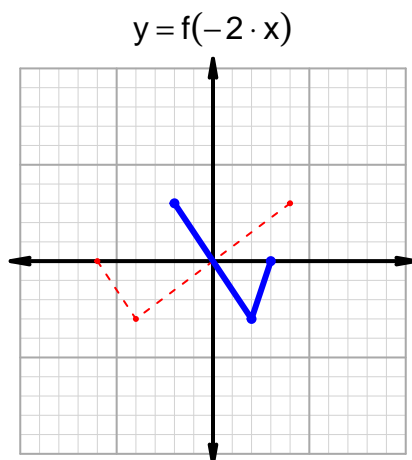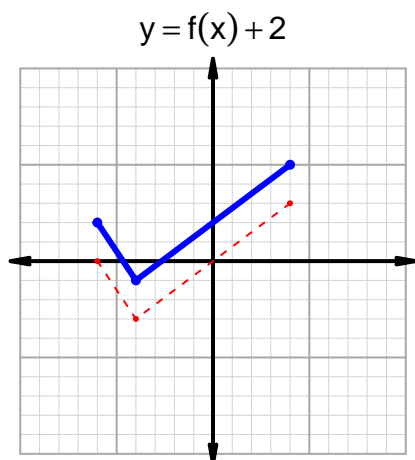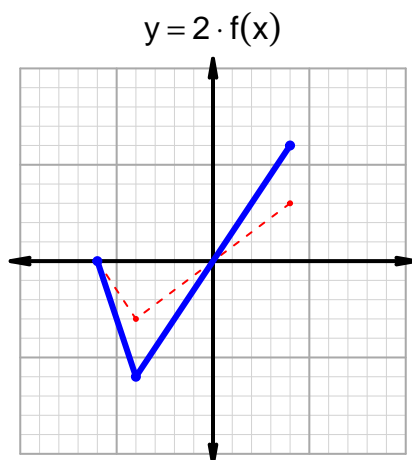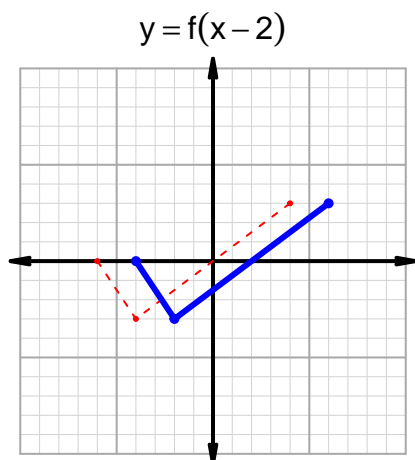
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 44$ and $x_2 = 69$. Express your answer as a reduced fraction.

x	$g(x)$
15	44
44	55
55	69
69	15

$\frac{g(69) - g(44)}{69 - 44} = \frac{15 - 55}{69 - 44} = \frac{-40}{25}$

The greatest common factor of -40 and 25 is 5. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-8}{5}$$